

REMARKS

The present Amendment amends claims 1, 5, 7, and 10, leaves claims 2, 6 and 9 unchanged, and cancels claim 4. Therefore, the present application has pending claims 1, 2, 5-7, 9, and 10.

Claim Objections

Claim 4 stands objected to due to informalities noted by the Examiner. As previously indicated, claim 4 was canceled. Therefore, objection is rendered moot.

35 U.S.C. §103 Rejections

Claims 1, 2, 4-7, 9 and 10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2003/007681 to Enomoto et al. ("Enomoto") in view of *Efficient Data Allocation over Multiple Channels as Broadcast Servers* by Yee et al. ("Yee"). As previously indicated, claim 4 was canceled. Therefore, this rejection regarding claim 4 is rendered moot. Regarding the remaining claims 1, 2, 5-7, 9, and 10 is traversed for the following reasons. Applicants submit that the features of the present invention, as now more clearly recited in claims 1, 2, 5-7, 9, and 10, are not taught or suggested by Enomoto or Yee, whether taken individually or in combination with each other in the manner suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe features of the present invention. Specifically, amendments were made to the claims to more clearly recite that the present invention is directed to an

information transmission system and method as recited, for example, in independent claims 1, 7 and 10.

The present invention, as recited in claim 1, and as similarly recited in claims 7 and 10, provides an information transmission system. The system includes two transmission lines and a plurality of transmission terminals that are connected to the transmission lines, such that information can be transmitted from one transmission terminal to another. According to the present invention, each of the transmission terminals receives information from a sender through the two transmission lines, such that all receiving of the information is conducted over both of said two transmission lines. Also according to the present invention, each of the transmission terminals includes a relaying means which, when receiving the information from only one of the transmission lines, transmits the received information to the other transmission line such that all transmissions are conducted over both of the two transmission lines. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Enomoto or Yee, whether taken individually or in combination with each other.

Enomoto teaches a system for controlling congestion on a network. However, there is no teaching or suggestion in Enomoto of the information transmission system and method as recited in claims 1, 7 and 9 of the present invention.

In the Enomoto congestion control system for congestion controlling communications on a network, a congestion control node has a congestion detection part for detecting a congestion level of the communications in the congestion control node in question and a congestion notifying part for notifying other congestion control nodes on the network of congestion information detected by the congestion detection part. The congestion control node further has a part for receiving the congestion information from the other congestion control nodes and a congestion flow estimating part for estimating, with reference to the congestion information and a routing table for designating a transfer path to destination. The Enomoto system is implemented in a ring-shaped network.

One feature of the present invention, as recited in claim 1, and as similarly recited in claims 7 and 9, includes where each of the transmission terminals receives information from a sender through the two transmission lines, such that all receiving of the information is conducted over both of the two transmission lines. For example, as shown in Fig. 1, and as described on page 7, line 21 to page 8, line 7, in the present invention, #1 transmission terminal (11) of vehicle 1 sends data to both key transmission lines 51 and 52. When no failure occurs in the system, #1 transmission terminals 21 to 41 and #2 transmission terminal 12 to 42, each receive identical data from above and below the transmission terminals, via both key transmission terminals 51 and 52. When each transmission terminal receives identical data from both directions, the transmission terminals do not relay data (i.e., assuming the network is not faulty). Enomoto does not disclose this feature, as claimed.

As shown in Fig. 1, Enomoto describes the use of a ring-shaped network. As described in paragraph [0110], the first congestion control node A1 receives a frame flowing in the ring-shaped network R1 via the first one-way link L101 or the third one-way link L103, and transfers the frame to the first client group C1 via the two-way link L100. Therefore, each congestion control node A1 to A4 receives a frame such all receiving of the information is conducted using only one of the one-way links. This is quite different from the present invention, where all receiving of the information is conducted using both of the two transmission lines.

Another feature of the present invention, as recited in claim 1, and as similarly recited in claims 7 and 9, includes where each of the transmission terminals includes a relaying means which, when receiving the information from only one of the transmission lines, transmits the received information to the other transmission line such that all transmissions are conducted over both of the two transmission lines. Enomoto does not disclose this feature.

For example, Enomoto does not teach or suggest where each of the transmission terminals includes a relaying means, which when receiving the information from only one of the transmission lines, transmits the received information to the other transmission line. As described on page 8, lines 7-12 of the present specification, each transmission terminal checks whether data is coming from only one transmission line, and is not coming from the other transmission line. If the data is coming from only one transmission line, then the relaying means transfers the data received from the transmission line to the other transmission line. Thus, the present invention provides a simple, yet highly-reliable information transmission system that can continue transmission

even when double failures occur on transmission lines (see, e.g., Fig. 3 and the accompanying text at page 8, line 13 to page 10, line 18 of the present specification).

Unlike the present invention, Enomoto teaches a ring-shaped network as shown in Fig. 1, where a frame is received from only one transmission line – at all times. That is to say, as described in paragraph [0110], Enomoto teaches where the first congestion control node A1 receives a frame flowing in the ring-shaped network R1 via the first one-way link L101 or the third one-way link L103, and transfer the frame to the first client group C1 via the two-way link L100 as the need arises. In this way, Enomoto always receives a frame from one transmission line – not from both transmission lines, in the manner claimed. Neither the control node A1 nor the client group C1 includes a relaying means that transmits the received information to the other transmission line upon receiving the information from only one of the transmission lines. For example, as shown in Fig. 2, and as described in the accompanying text, Enomoto discloses where the congestion control node A1 includes a transfer direction determination part, a routing table, and congestion control parts. Neither of these elements included in the control node A1 is a relaying means that operates in the manner claimed.

By way of further example, and as conceded by the Examiner, Enomoto does not teach or suggest where all the transmissions are conducted over both of the transmission lines. The Examiner relies upon Yee for teaching this feature. Applicants agree that Enomoto does not teach this feature, and further submit that Enomoto does not teach or suggest where the relaying means, when receiving the information from only one of the

transmission lines, transmits the received information to the other transmission line, such that all transmissions are conducted over both of the two transmission lines, in the manner claimed.

As described in paragraph [0111], Enomoto discloses where the first congestion control node A1 retransfers a frame flowing on the first one-way link L101 to the second one-way link L102, and retransfers a frame flowing on the third one-way link L103 to the fourth one-way link L104. Therefore, two frames that are different from each other are transferred among the first through the fourth congestion nodes A1 to A4 using the first and second one-way ring R11 and R12, respectively. If one of the first or the second one-way ring R11 or R12 fails, it will become impossible to transfer the one frame immediately.

Therefore, Enomoto fails to teach or suggest "wherein each of said transmission terminals receives information from a sender through said two transmission lines such that all receiving of the information is conducted over both of said two transmission lines" as recited in claim 1, and as similarly recited in claims 7 and 9.

Furthermore, Enomoto fails to teach or suggest "wherein each of said transmission terminals includes a relaying means which, when receiving said information from only one of said transmission lines, transmits the received information to the other transmission line such that all transmissions are conducted over both of said two transmission lines" as recited in claim 1, and as similarly recited in claims 7 and 9.

The above noted deficiencies of Enomoto are not supplied by any of the other references of record, namely Yee, whether taken individually or in

combination with each other. Therefore, combining the teachings of Enomoto and Yee in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Yee teaches a method of efficiently allocating data over multiple channels at broadcast servers. However, there is no teaching or suggestion in Yee of the information transmission system and method as recited in claims 1, 7 and 9 of the present invention.

Yee discloses the use of broadcast transmission for disseminating data. As described in Yee, broadcast is used because broadcasting an item satisfies all outstanding client requests for the item. However, because the transmission medium is shared, individual requests may have high response times. Yee shows how to minimize the average response time given multiple broadcast channels by optimally partitioning data among the channels.

One feature of the present invention, as recited in claim 1, and as similarly recited in claims 7 and 9, includes where each of the transmission terminals receives information from a sender through the two transmission lines, such that all receiving of the information is conducted over both of the two transmission lines. Yee does not disclose this feature, and the Examiner does not rely upon Yee for teaching where the terminals receive information from a sender through the two transmission lines. Applicants further submit that Yee does not teach where each of the transmission terminals receives information from a sender through two transmission lines, such that all receiving of the information is conducted over both of the two transmission lines. As described on page 1231, in the first sentence under section 1, Yee

discloses where broadcasting is a means by which a single server can transmit data to an unlimited number of clients. Unlike in the present invention, the clients of Yee that receive information do not receive the information from a sender through two transmission lines. Although Yee discloses the use of multiple transmission lines, Yee does not teach where a client receives information via two transmission lines, in the manner claimed.

Another feature of the present invention, as recited in claim 1, and as similarly recited in claims 7 and 9, includes where each of the transmission terminals includes a relaying means which, when receiving the information from only one of the transmission lines, transmits the received information to the other transmission line such that all transmissions are conducted over both of the two transmission lines. Yee does not disclose this feature. The Examiner relies upon Yee for teaching that all transmissions are conducted over both of two transmission lines. The Examiner asserts that it would be obvious to modify the teachings of Enomoto to include the teachings of Yee because one of ordinary skill in the art would be motivated "to allocate these channels in a way that reduces the average expected delay of a request," citing Yee, section 1.

However, Applicants disagree that one would be motivated to modify Enomoto to include the teachings of Yee. Enomoto discloses a ring-shaped network, where every device has exactly two neighbors for communication purposes. All messages travel through each of the rings R11 and R12 in the same direction, "clockwise" and "counterclockwise", respectively. A failure in either R11 or R12 breaks the loop and can take down the entire network. Yee is merely directed to broadcasting, which is a means by which a single server

transmits data to an unlimited number of clients. As discussed in MPEP 2143.01(V), if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. Applicants submit that by combining the transmission lines that transmit data to multiple clients, as disclosed in Yee, with the ring-shaped network of Enomoto, the resulting configuration would render Enomoto unsatisfactory for its intended purpose, which is to reduce congestion. The addition of more transmission lines to the dual ring-shaped network of Enomoto would contribute to more congestion, which is the problem Enomoto attempts to solve. Accordingly, contrary to the Examiner's assertions, there is no motivation for combining Enomoto and Yee.

Therefore, Yee fails to teach or suggest "wherein each of said transmission terminals receives information from a sender through said two transmission lines such that all receiving of the information is conducted over both of said two transmission lines" as recited in claim 1, and as similarly recited in claims 7 and 9.

Furthermore, Yee fails to teach or suggest "wherein each of said transmission terminals includes a relaying means which, when receiving said information from only one of said transmission lines, transmits the received information to the other transmission line such that all transmissions are conducted over both of said two transmission lines" as recited in claim 1, and as similarly recited in claims 7 and 9.

Both Enomoto and Yee suffer from the same deficiencies, relative to the features of the present invention, as recited in the claims. Therefore,

combining the teachings of Enomoto and Yee in the manner suggested by the Examiner does not render obvious the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 1, 2, 5-7, 9, and 10 as being unpatentable over Enomoto in view of Yee are respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references used in the rejection of claims 1, 2, 5-7, 9, and 10.

In view of the foregoing amendments and remarks, Applicants submit that pending claims 1, 2, 5-7, 9 and 10 are in condition for allowance. Accordingly, early allowance of these claims is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (referencing Attorney Docket No. 520.43271X00).

Respectfully submitted,

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